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SECONDARY MALIGNANCY IN GIANT CELL TUMOR OF THE SKULL BASE AFTER DENOSUMAB TREATMENT: CASE REPORT

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Abstract

Giant cell tumor of bone is a rare neoplasm characterized by its unpredictable behavior, possible malignant transformations, and/or lung metastases. Surgery is the treatment of choice. In unresectable or metastatic cases, treatment with denosumab is a new treatment option.

In October 2015, a 14-year-old female presented with cachexia, dysphagia, diplopia, discoordination, strabismus, and multiple cranial nerve palsies. An MRI examination revealed an intra-extracranial mass arising from C2 vertebrae, compressing the medulla oblongata and the left cerebellar hemisphere, invading the sphenoid bone and nasopharynges. The biopsy results revealed the presence of a giant cell tumor of bone. The first surgical resection was incomplete because of tumor location (cranial nerve and vertebral artery involvement). The patient received local radiotherapy with 50.4Gy, but the patient's condition worsened during this period and subsequent MRI examination showed disease progression. In March 2016, the administration of denosumab at a dosage of 120 mg every 4 weeks was initiated, and induced rapid clinical improvement and radiographically proven partial response. Disease was under control for three years until March 2019, when she returned with clinical symptoms of diplopia and severe headache. MRI showed local tumor progression. Repeated biopsy revealed an undifferentiated pleomorphic sarcoma. Two cycles of chemotherapy with Ifosfamide/Doxorubicin were administered, but MRI after chemotherapy showed marked tumor progression. The patient received palliative care and died due to disease progression in December 2019 – 4 years after initial diagnosis.

To our knowledge, this is the youngest patient ever reported with a skull base Giant cell tumor initially responding to denosumab for 3 years but progressing to chemotherapy resistant undifferentiated pleomorphic sarcoma.

Keywords: *secondary malignancy, giant cell tumor of bone, GCT, denosumab.*

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